

**Recra LabNet Philadelphia
Analytical Report**

Client : TNU-HANFORD B99-078
RFW# : 9908L863
SDG/SAF# : B99-078/H0502

W.O.# : 10985-001-001-9999-00
Date Received: 08-25-99

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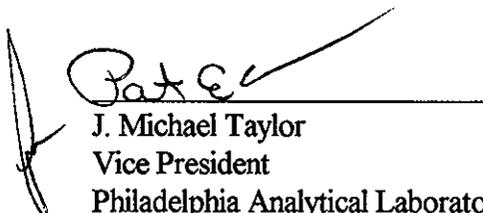
METALS CASE NARRATIVE

1. This narrative covers the analyses of 8 soil samples.
2. Samples were prepared and analyzed in accordance with methods checked on the attached glossary.
3. All analyses were performed within the required holding times.
4. All cooler temperatures have been recorded on the Chain of Custody.
5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury).
6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).
7. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL) or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.
8. All ICP Interference Check Standards were within control limits.
9. All laboratory control samples (LCS) were within the laboratory control limits. Refer to the Inorganics Laboratory Control Standards Report.
10. The matrix spike (MS) recovery for Antimony was outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.
11. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A PDS was prepared at the following level:

<u>Sample ID</u>	<u>Element</u>	<u>PDS Concentration (ppb)</u>	<u>PDS % Recovery</u>
BOW5L0	Antimony	100	106.4

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 027 pages.

12. The duplicate analyses for 3 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.
13. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.



J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory
mld/m08-863

11-9-99
Date



METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this

Recra Lot#: 9908L863

Leaching Procedure: 1310 1311 1312 Other: _____

CLP Metals Digestion and Analysis Methods: ILM03.0 ILM04.0

Metals Digestion Methods: 3005A 3010A 3015 3020A 3050A 3051 200.7 SS17
 Other: _____

Metals Analysis Methods

	SW846	EPA	STD MTD	EPA OSWR	USATHAMA
Aluminum	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Antimony	<input checked="" type="checkbox"/> 6010B <u> </u> 7041 ⁵	<u> </u> 200.7 <u> </u> 204.2			<u> </u> 99
Arsenic	<input checked="" type="checkbox"/> 6010B <u> </u> 7060A ⁵	<u> </u> 200.7 <u> </u> 206.2	<u> </u> 3113B		<u> </u> 99
Barium	<input checked="" type="checkbox"/> 6010B	<u> </u> 200.7			<u> </u> 99
Beryllium	<input checked="" type="checkbox"/> 6010B	<u> </u> 200.7			<u> </u> 99
Bismuth	<u> </u> 6010B ¹	<u> </u> 200.7 ¹		<u> </u> 1620	<u> </u> 99
Boron	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Cadmium	<input checked="" type="checkbox"/> 6010B <u> </u> 7131A ⁵	<u> </u> 200.7 <u> </u> 213.2			<u> </u> 99
Calcium	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Chromium	<input checked="" type="checkbox"/> 6010B <u> </u> 7191 ⁵	<u> </u> 200.7 <u> </u> 218.2			<u> </u> SS17
Cobalt	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Copper	<input checked="" type="checkbox"/> 6010B <u> </u> 7211 ⁵	<u> </u> 200.7 <u> </u> 220.2			<u> </u> 99
Iron	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Lead	<input checked="" type="checkbox"/> 6010B <u> </u> 7421 ⁵	<u> </u> 200.7 <u> </u> 239.2	<u> </u> 3113B		<u> </u> 99
Lithium	<u> </u> 6010B <u> </u> 7430 ⁴	<u> </u> 200.7		<u> </u> 1620	<u> </u> 99
Magnesium	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Manganese	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Mercury	<u> </u> 7470A ³ <input checked="" type="checkbox"/> 7471A ³	<u> </u> 245.1 ² <u> </u> 245.5 ²			<u> </u> 99
Molybdenum	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Nickel	<input checked="" type="checkbox"/> 6010B	<u> </u> 200.7			<u> </u> 99
Potassium	<u> </u> 6010B <u> </u> 7610 ⁴	<u> </u> 200.7 <u> </u> 258.1 ⁴			<u> </u> 99
Rare Earths	<u> </u> 6010B ¹	<u> </u> 200.7 ¹		<u> </u> 1620	<u> </u> 99
Selenium	<input checked="" type="checkbox"/> 6010B <u> </u> 7740 ⁵	<u> </u> 200.7 <u> </u> 270.2	<u> </u> 3113B		<u> </u> 99
Silicon	<u> </u> 6010B ¹	<u> </u> 200.7		<u> </u> 1620	<u> </u> 99
Silica	<u> </u> 6010B	<u> </u> 200.7		<u> </u> 1620	<u> </u> 99
Silver	<input checked="" type="checkbox"/> 6010B <u> </u> 7761 ⁵	<u> </u> 200.7 <u> </u> 272.2			<u> </u> 99
Sodium	<u> </u> 6010B <u> </u> 7770 ⁴	<u> </u> 200.7 <u> </u> 273.1 ⁴			<u> </u> 99
Strontium	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Thallium	<input checked="" type="checkbox"/> 6010B <u> </u> 7841 ⁵	<u> </u> 200.7 <u> </u> 279.2 <u> </u> 200.9			<u> </u> 99
Tin	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Titanium	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Uranium	<u> </u> 6010B ¹	<u> </u> 200.7 ¹		<u> </u> 1620	<u> </u> 99
Vanadium	<input checked="" type="checkbox"/> 6010B	<u> </u> 200.7			<u> </u> 99
Zinc	<input checked="" type="checkbox"/> 6010B	<u> </u> 200.7			<u> </u> 99
Zirconium	<u> </u> 6010B ¹	<u> </u> 200.7 ¹		<u> </u> 1620	<u> </u> 99

Other: _____

Method: _____

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.

MS = Matrix Spike.

MSD = Matrix Spike Duplicate.

REP = Sample Replicate

LCS = Laboratory Control Sample.

NC = Not calculated.

ANALYTICAL METAL METHODS

1. Not included in the method element list.
2. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, 0.1 grams of sample is taken to a final volume of 50 mL (including all reagents).
3. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, three 0.1 gram of sample is taken to a final volume of 50 mL (including all reagents).
4. Flame AA.
5. Graphite Furnace AA.

RFW 21-21L-033/N-10/96

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 11/09/99

CLIENT: TNU-HANFORD B99-078
 WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 9908L863

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B0W5L0	Silver, Total	0.09	u MG/KG	0.09	1.0
		Arsenic, Total	2.9	MG/KG	0.30	1.0
		Barium, Total	75.3	MG/KG	0.03	1.0
		Beryllium, Total	0.69	MG/KG	0.009	1.0
		Cadmium, Total	0.03	u MG/KG	0.03	1.0
		Chromium, Total	7.1	MG/KG	0.07	1.0
		Copper, Total	16.4	MG/KG	0.11	1.0
		Mercury, Total	0.01	u MG/KG	0.01	1.0
		Nickel, Total	8.7	MG/KG	0.11	1.0
		Lead, Total	3.9	MG/KG	0.19	1.0
		Antimony, Total	0.23	u MG/KG	0.23	1.0
		Selenium, Total	0.34	u MG/KG	0.34	1.0
		Thallium, Total	0.49	u MG/KG	0.49	1.0
		Vanadium, Total	51.3	MG/KG	0.06	1.0
		Zinc, Total	44.8	MG/KG	0.07	1.0
-002	B0W5L2	Silver, Total	0.08	u MG/KG	0.08	1.0
		Arsenic, Total	2.6	MG/KG	0.25	1.0
		Barium, Total	63.0	MG/KG	0.02	1.0
		Beryllium, Total	0.74	MG/KG	0.008	1.0
		Cadmium, Total	0.02	u MG/KG	0.02	1.0
		Chromium, Total	5.2	MG/KG	0.06	1.0
		Copper, Total	16.2	MG/KG	0.09	1.0
		Mercury, Total	0.01	u MG/KG	0.01	1.0
		Nickel, Total	7.1	MG/KG	0.09	1.0
		Lead, Total	3.3	MG/KG	0.16	1.0
		Antimony, Total	0.19	u MG/KG	0.19	1.0
		Selenium, Total	0.28	u MG/KG	0.28	1.0
		Thallium, Total	0.51	MG/KG	0.41	1.0
		Vanadium, Total	54.1	MG/KG	0.05	1.0
		Zinc, Total	40.6	MG/KG	0.06	1.0

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INORGANICS DATA SUMMARY REPORT 11/09/99

CLIENT: TNU-HANFORD B99-078
 WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 9908L863

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B0W5K4	Silver, Total	0.08	u MG/KG	0.08	1.0
		Arsenic, Total	3.4	MG/KG	0.27	1.0
		Barium, Total	77.2	MG/KG	0.02	1.0
		Beryllium, Total	0.63	MG/KG	0.008	1.0
		Cadmium, Total	0.02	u MG/KG	0.02	1.0
		Chromium, Total	10.4	MG/KG	0.07	1.0
		Copper, Total	12.0	MG/KG	0.1	1.0
		Mercury, Total	0.02	u MG/KG	0.02	1.0
		Nickel, Total	10.1	MG/KG	0.1	1.0
		Lead, Total	5.0	MG/KG	0.17	1.0
		Antimony, Total	0.20	u MG/KG	0.20	1.0
		Selenium, Total	0.30	u MG/KG	0.30	1.0
		Thallium, Total	0.56	MG/KG	0.43	1.0
		Vanadium, Total	45.8	MG/KG	0.05	1.0
		Zinc, Total	40.0	MG/KG	0.07	1.0
-004	B0W5K5	Silver, Total	0.1	u MG/KG	0.1	1.0
		Arsenic, Total	33.8	MG/KG	0.33	1.0
		Barium, Total	129	MG/KG	0.03	1.0
		Beryllium, Total	0.91	MG/KG	0.01	1.0
		Cadmium, Total	0.03	u MG/KG	0.03	1.0
		Chromium, Total	15.7	MG/KG	0.08	1.0
		Copper, Total	22.7	MG/KG	0.12	1.0
		Mercury, Total	0.02	u MG/KG	0.02	1.0
		Nickel, Total	15.1	MG/KG	0.12	1.0
		Lead, Total	12.3	MG/KG	0.21	1.0
		Antimony, Total	0.25	u MG/KG	0.25	1.0
		Selenium, Total	0.37	u MG/KG	0.37	1.0
		Thallium, Total	0.53	u MG/KG	0.53	1.0
		Vanadium, Total	55.2	MG/KG	0.06	1.0
		Zinc, Total	59.1	MG/KG	0.08	1.0

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INORGANICS DATA SUMMARY REPORT 11/09/99

CLIENT: TNU-HANFORD B99-078
 WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 9908L863

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	BOW5K6	Silver, Total	0.09 u	MG/KG	0.09	1.0
		Arsenic, Total	2.9	MG/KG	0.29	1.0
		Barium, Total	72.2	MG/KG	0.03	1.0
		Beryllium, Total	0.67	MG/KG	0.009	1.0
		Cadmium, Total	0.03 u	MG/KG	0.03	1.0
		Chromium, Total	8.8	MG/KG	0.07	1.0
		Copper, Total	13.5	MG/KG	0.10	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Nickel, Total	9.9	MG/KG	0.10	1.0
		Lead, Total	5.0	MG/KG	0.18	1.0
		Antimony, Total	0.22 u	MG/KG	0.22	1.0
		Selenium, Total	0.32 u	MG/KG	0.32	1.0
		Thallium, Total	0.46 u	MG/KG	0.46	1.0
		Vanadium, Total	62.0	MG/KG	0.05	1.0
		Zinc, Total	47.5	MG/KG	0.07	1.0
-006	BOW5K7	Silver, Total	0.09 u	MG/KG	0.09	1.0
		Arsenic, Total	7.3	MG/KG	0.29	1.0
		Barium, Total	87.7	MG/KG	0.03	1.0
		Beryllium, Total	0.76	MG/KG	0.009	1.0
		Cadmium, Total	0.03 u	MG/KG	0.03	1.0
		Chromium, Total	11.0	MG/KG	0.07	1.0
		Copper, Total	14.7	MG/KG	0.11	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Nickel, Total	11.6	MG/KG	0.11	1.0
		Lead, Total	7.3	MG/KG	0.19	1.0
		Antimony, Total	0.22 u	MG/KG	0.22	1.0
		Selenium, Total	0.33 u	MG/KG	0.33	1.0
		Thallium, Total	0.71	MG/KG	0.47	1.0
		Vanadium, Total	50.1	MG/KG	0.05	1.0
		Zinc, Total	46.8	MG/KG	0.07	1.0

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INORGANICS DATA SUMMARY REPORT 11/09/99

CLIENT: TNU-HANFORD B99-078
 WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 9908L863

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
*****	*****	*****	*****	*****	*****	*****
-007	B0W5K8	Silver, Total	0.1	u MG/KG	0.1	1.0
		Arsenic, Total	9.6	MG/KG	0.32	1.0
		Barium, Total	89.5	MG/KG	0.03	1.0
		Beryllium, Total	0.91	MG/KG	0.01	1.0
		Cadmium, Total	0.03	u MG/KG	0.03	1.0
		Chromium, Total	10.2	MG/KG	0.08	1.0
		Copper, Total	17.2	MG/KG	0.12	1.0
		Mercury, Total	0.02	u MG/KG	0.02	1.0
		Nickel, Total	11.9	MG/KG	0.12	1.0
		Lead, Total	6.7	MG/KG	0.20	1.0
		Antimony, Total	0.24	u MG/KG	0.24	1.0
		Selenium, Total	0.36	u MG/KG	0.36	1.0
		Thallium, Total	0.62	MG/KG	0.52	1.0
		Vanadium, Total	63.9	MG/KG	0.06	1.0
		Zinc, Total	55.6	MG/KG	0.08	1.0
-008	B0W5K9	Silver, Total	0.08	u MG/KG	0.08	1.0
		Arsenic, Total	5.9	MG/KG	0.27	1.0
		Barium, Total	74.8	MG/KG	0.02	1.0
		Beryllium, Total	0.71	MG/KG	0.008	1.0
		Cadmium, Total	0.02	u MG/KG	0.02	1.0
		Chromium, Total	9.0	MG/KG	0.07	1.0
		Copper, Total	13.8	MG/KG	0.1	1.0
		Mercury, Total	0.01	u MG/KG	0.01	1.0
		Nickel, Total	10.1	MG/KG	0.1	1.0
		Lead, Total	5.6	MG/KG	0.17	1.0
		Antimony, Total	0.21	u MG/KG	0.21	1.0
		Selenium, Total	0.32	MG/KG	0.30	1.0
		Thallium, Total	0.52	MG/KG	0.44	1.0
		Vanadium, Total	52.2	MG/KG	0.05	1.0
		Zinc, Total	45.3	MG/KG	0.07	1.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 11/09/99

CLIENT: TNU-MANFORD B99-078
 WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 9908L863

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	99L0601-MB1	Silver, Total	0.10 u	MG/KG	0.10	1.0
		Arsenic, Total	0.33 u	MG/KG	0.33	1.0
		Barium, Total	0.19	MG/KG	0.03	1.0
		Beryllium, Total	0.01 u	MG/KG	0.01	1.0
		Cadmium, Total	0.03 u	MG/KG	0.03	1.0
		Chromium, Total	0.08 u	MG/KG	0.08	1.0
		Copper, Total	0.12 u	MG/KG	0.12	1.0
		Nickel, Total	0.12 u	MG/KG	0.12	1.0
		Lead, Total	0.21 u	MG/KG	0.21	1.0
		Antimony, Total	0.25 u	MG/KG	0.25	1.0
		Selenium, Total	0.37 u	MG/KG	0.37	1.0
		Thallium, Total	0.53 u	MG/KG	0.53	1.0
		Vanadium, Total	0.06 u	MG/KG	0.06	1.0
		Zinc, Total	0.23	MG/KG	0.08	1.0
BLANK1	99C0254-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

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Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 11/09/99

CLIENT: TNU-HANFORD B99-078
 WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 9908L863

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	B0W5L0	Silver, Total	4.1	0.09u	4.4	93.2	1.0
		Arsenic, Total	171	2.9	176	95.8	1.0
		Barium, Total	238	75.3	176	92.8	1.0
		Beryllium, Total	4.9	0.69	4.4	95.7	1.0
		Cadmium, Total	4.1	0.03u	4.4	93.2	1.0
		Chromium, Total	23.4	7.1	17.6	92.6	1.0
		Copper, Total	35.2	16.4	22.0	85.5	1.0
		Mercury, Total	0.13	0.01u	0.13	99.3	1.0
		Nickel, Total	48.4	8.7	43.9	90.4	1.0
		Lead, Total	45.2	3.9	43.9	94.1	1.0
		Antimony, Total	12.1	0.23u	43.9	27.6	1.0
		Selenium, Total	165	0.34u	176	93.9	1.0
		Thallium, Total	169	0.49u	176	96.4	1.0
		Vanadium, Total	92.6	51.3	43.9	94.1	1.0
		Zinc, Total	83.1	44.8	43.9	87.2	1.0

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Recre LabNet - Lionville

INORGANICS PRECISION REPORT 11/09/99

CLIENT: TNU-HANFORD B99-078
 WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 9908L863

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION FACTOR (REP)
			RESULT	REPLICATE	RPD	
-001REP	B0W5L0	Silver, Total	0.09u	0.08u	NC	1.0
		Arsenic, Total	2.9	1.8	46.8	1.0
		Barium, Total	75.3	72.4	3.9	1.0
		Beryllium, Total	0.69	0.57	18.2	1.0
		Cadmium, Total	0.03u	0.02u	NC	1.0
		Chromium, Total	7.1	6.8	4.3	1.0
		Copper, Total	16.4	13.3	20.9	1.0
		Mercury, Total	0.01u	0.01u	NC	1.0
		Nickel, Total	8.7	7.2	18.9	1.0
		Lead, Total	3.9	4.0	2.5	1.0
		Antimony, Total	0.23u	0.20u	NC	1.0
		Selenium, Total	0.34u	0.29u	NC	1.0
		Thallium, Total	0.49u	0.51	NC 200	1.0
		Vanadium, Total	51.3	50.2	2.2	1.0
		Zinc, Total	44.8	41.0	8.9	1.0

*Correction
 11/11/99*

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 11/09/99

CLIENT: TNU-HANFORD B99-078
 WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 9908L863

SAMPLE	SITE ID	ANALYTE	SPIKED	SPIKED	UNITS	%RECOV
			SAMPLE	AMOUNT		
LCS1	99L0601-LC1	Silver, LCS	49.7	50.0	MG/KG	99.4
		Arsenic, LCS	974	1000	MG/KG	97.4
		Barium, LCS	503	500	MG/KG	100.5
		Beryllium, LCS	24.6	25.0	MG/KG	98.4
		Cadmium, LCS	24.6	25.0	MG/KG	98.4
		Chromium, LCS	50.5	50.0	MG/KG	101.0
		Copper, LCS	126	125	MG/KG	100.4
		Nickel, LCS	198	200	MG/KG	99.0
		Lead, LCS	245	250	MG/KG	98.0
		Antimony, LCS	296	300	MG/KG	98.5
		Selenium, LCS	948	1000	MG/KG	94.8
		Thallium, LCS	986	1000	MG/KG	98.6
		Vanadium, LCS	257	250	MG/KG	102.9
		Zinc, LCS	97.1	100	MG/KG	97.1
LCS1	99C0254-LC1	Mercury, LCS	0.97	1.0	MG/KG	96.7

012

Recra LabNet - Lionville Laboratory
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNU-HANFORD B99-078

DATE RECEIVED: 08/25/99

RFW LOT # :9908L863

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BOW5L0						
SILVER, TOTAL	001	S	99L0601	08/23/99	09/01/99	09/07/99
SILVER, TOTAL	001 REP	S	99L0601	08/23/99	09/01/99	09/07/99
SILVER, TOTAL	001 MS	S	99L0601	08/23/99	09/01/99	09/07/99
ARSENIC, TOTAL	001	S	99L0601	08/23/99	09/01/99	09/07/99
ARSENIC, TOTAL	001 REP	S	99L0601	08/23/99	09/01/99	09/07/99
ARSENIC, TOTAL	001 MS	S	99L0601	08/23/99	09/01/99	09/07/99
BARIUM, TOTAL	001	S	99L0601	08/23/99	09/01/99	09/07/99
BARIUM, TOTAL	001 REP	S	99L0601	08/23/99	09/01/99	09/07/99
BARIUM, TOTAL	001 MS	S	99L0601	08/23/99	09/01/99	09/07/99
BERYLLIUM, TOTAL	001	S	99L0601	08/23/99	09/01/99	09/07/99
BERYLLIUM, TOTAL	001 REP	S	99L0601	08/23/99	09/01/99	09/07/99
BERYLLIUM, TOTAL	001 MS	S	99L0601	08/23/99	09/01/99	09/07/99
CADMIUM, TOTAL	001	S	99L0601	08/23/99	09/01/99	09/07/99
CADMIUM, TOTAL	001 REP	S	99L0601	08/23/99	09/01/99	09/07/99
CADMIUM, TOTAL	001 MS	S	99L0601	08/23/99	09/01/99	09/07/99
CHROMIUM, TOTAL	001	S	99L0601	08/23/99	09/01/99	09/07/99
CHROMIUM, TOTAL	001 REP	S	99L0601	08/23/99	09/01/99	09/07/99
CHROMIUM, TOTAL	001 MS	S	99L0601	08/23/99	09/01/99	09/07/99
COPPER, TOTAL	001	S	99L0601	08/23/99	09/01/99	09/07/99
COPPER, TOTAL	001 REP	S	99L0601	08/23/99	09/01/99	09/07/99
COPPER, TOTAL	001 MS	S	99L0601	08/23/99	09/01/99	09/07/99
MERCURY, TOTAL	001	S	99C0254	08/23/99	08/26/99	08/27/99
MERCURY, TOTAL	001 REP	S	99C0254	08/23/99	08/26/99	08/27/99
MERCURY, TOTAL	001 MS	S	99C0254	08/23/99	08/26/99	08/27/99
NICKEL, TOTAL	001	S	99L0601	08/23/99	09/01/99	09/07/99
NICKEL, TOTAL	001 REP	S	99L0601	08/23/99	09/01/99	09/07/99
NICKEL, TOTAL	001 MS	S	99L0601	08/23/99	09/01/99	09/07/99
LEAD, TOTAL	001	S	99L0601	08/23/99	09/01/99	09/07/99
LEAD, TOTAL	001 REP	S	99L0601	08/23/99	09/01/99	09/07/99
LEAD, TOTAL	001 MS	S	99L0601	08/23/99	09/01/99	09/07/99
ANTIMONY, TOTAL	001	S	99L0601	08/23/99	09/01/99	09/07/99
ANTIMONY, TOTAL	001 REP	S	99L0601	08/23/99	09/01/99	09/07/99
ANTIMONY, TOTAL	001 MS	S	99L0601	08/23/99	09/01/99	09/07/99
SELENIUM, TOTAL	001	S	99L0601	08/23/99	09/01/99	09/07/99
SELENIUM, TOTAL	001 REP	S	99L0601	08/23/99	09/01/99	09/07/99

Recra LabNet - Lionville Laboratory
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNU-HANFORD B99-078

DATE RECEIVED: 08/25/99

RFW LOT # :9908L863

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MERCURY, TOTAL	003	S	99C0254	08/23/99	08/26/99	08/27/99
NICKEL, TOTAL	003	S	99L0601	08/23/99	09/01/99	09/07/99
LEAD, TOTAL	003	S	99L0601	08/23/99	09/01/99	09/07/99
ANTIMONY, TOTAL	003	S	99L0601	08/23/99	09/01/99	09/07/99
SELENIUM, TOTAL	003	S	99L0601	08/23/99	09/01/99	09/07/99
THALLIUM, TOTAL	003	S	99L0601	08/23/99	09/01/99	09/07/99
VANADIUM, TOTAL	003	S	99L0601	08/23/99	09/01/99	09/07/99
ZINC, TOTAL	003	S	99L0601	08/23/99	09/01/99	09/07/99

BOW5K5

SILVER, TOTAL	004	S	99L0601	08/23/99	09/01/99	09/07/99
ARSENIC, TOTAL	004	S	99L0601	08/23/99	09/01/99	09/07/99
BARIUM, TOTAL	004	S	99L0601	08/23/99	09/01/99	09/07/99
BERYLLIUM, TOTAL	004	S	99L0601	08/23/99	09/01/99	09/07/99
CADMIUM, TOTAL	004	S	99L0601	08/23/99	09/01/99	09/07/99
CHROMIUM, TOTAL	004	S	99L0601	08/23/99	09/01/99	09/07/99
COPPER, TOTAL	004	S	99L0601	08/23/99	09/01/99	09/07/99
MERCURY, TOTAL	004	S	99C0254	08/23/99	08/26/99	08/27/99
NICKEL, TOTAL	004	S	99L0601	08/23/99	09/01/99	09/07/99
LEAD, TOTAL	004	S	99L0601	08/23/99	09/01/99	09/07/99
ANTIMONY, TOTAL	004	S	99L0601	08/23/99	09/01/99	09/07/99
SELENIUM, TOTAL	004	S	99L0601	08/23/99	09/01/99	09/07/99
THALLIUM, TOTAL	004	S	99L0601	08/23/99	09/01/99	09/07/99
VANADIUM, TOTAL	004	S	99L0601	08/23/99	09/01/99	09/07/99
ZINC, TOTAL	004	S	99L0601	08/23/99	09/01/99	09/07/99

BOW5K6

SILVER, TOTAL	005	S	99L0601	08/23/99	09/01/99	09/07/99
ARSENIC, TOTAL	005	S	99L0601	08/23/99	09/01/99	09/07/99
BARIUM, TOTAL	005	S	99L0601	08/23/99	09/01/99	09/07/99
BERYLLIUM, TOTAL	005	S	99L0601	08/23/99	09/01/99	09/07/99
CADMIUM, TOTAL	005	S	99L0601	08/23/99	09/01/99	09/07/99
CHROMIUM, TOTAL	005	S	99L0601	08/23/99	09/01/99	09/07/99
COPPER, TOTAL	005	S	99L0601	08/23/99	09/01/99	09/07/99
MERCURY, TOTAL	005	S	99C0254	08/23/99	08/26/99	08/27/99
NICKEL, TOTAL	005	S	99L0601	08/23/99	09/01/99	09/07/99

Recra LabNet - Lionville Laboratory
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNU-HANFORD B99-078

DATE RECEIVED: 08/25/99

RFW LOT # :9908L863

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
LEAD, TOTAL	005	S	99L0601	08/23/99	09/01/99	09/07/99
ANTIMONY, TOTAL	005	S	99L0601	08/23/99	09/01/99	09/07/99
SELENIUM, TOTAL	005	S	99L0601	08/23/99	09/01/99	09/07/99
THALLIUM, TOTAL	005	S	99L0601	08/23/99	09/01/99	09/07/99
VANADIUM, TOTAL	005	S	99L0601	08/23/99	09/01/99	09/07/99
ZINC, TOTAL	005	S	99L0601	08/23/99	09/01/99	09/07/99

B0W5K7

SILVER, TOTAL	006	S	99L0601	08/23/99	09/01/99	09/07/99
ARSENIC, TOTAL	006	S	99L0601	08/23/99	09/01/99	09/07/99
BARIUM, TOTAL	006	S	99L0601	08/23/99	09/01/99	09/07/99
BERYLLIUM, TOTAL	006	S	99L0601	08/23/99	09/01/99	09/07/99
CADMIUM, TOTAL	006	S	99L0601	08/23/99	09/01/99	09/07/99
CHROMIUM, TOTAL	006	S	99L0601	08/23/99	09/01/99	09/07/99
COPPER, TOTAL	006	S	99L0601	08/23/99	09/01/99	09/07/99
MERCURY, TOTAL	006	S	99C0254	08/23/99	08/26/99	08/27/99
NICKEL, TOTAL	006	S	99L0601	08/23/99	09/01/99	09/07/99
LEAD, TOTAL	006	S	99L0601	08/23/99	09/01/99	09/07/99
ANTIMONY, TOTAL	006	S	99L0601	08/23/99	09/01/99	09/07/99
SELENIUM, TOTAL	006	S	99L0601	08/23/99	09/01/99	09/07/99
THALLIUM, TOTAL	006	S	99L0601	08/23/99	09/01/99	09/07/99
VANADIUM, TOTAL	006	S	99L0601	08/23/99	09/01/99	09/07/99
ZINC, TOTAL	006	S	99L0601	08/23/99	09/01/99	09/07/99

B0W5K8

SILVER, TOTAL	007	S	99L0601	08/23/99	09/01/99	09/07/99
ARSENIC, TOTAL	007	S	99L0601	08/23/99	09/01/99	09/07/99
BARIUM, TOTAL	007	S	99L0601	08/23/99	09/01/99	09/07/99
BERYLLIUM, TOTAL	007	S	99L0601	08/23/99	09/01/99	09/07/99
CADMIUM, TOTAL	007	S	99L0601	08/23/99	09/01/99	09/07/99
CHROMIUM, TOTAL	007	S	99L0601	08/23/99	09/01/99	09/07/99
COPPER, TOTAL	007	S	99L0601	08/23/99	09/01/99	09/07/99
MERCURY, TOTAL	007	S	99C0254	08/23/99	08/26/99	08/27/99
NICKEL, TOTAL	007	S	99L0601	08/23/99	09/01/99	09/07/99
LEAD, TOTAL	007	S	99L0601	08/23/99	09/01/99	09/07/99
ANTIMONY, TOTAL	007	S	99L0601	08/23/99	09/01/99	09/07/99

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Recra LabNet - Lionville Laboratory
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNU-HANFORD B99-078

DATE RECEIVED: 08/25/99

RFW LOT # :9908L863

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SELENIUM, TOTAL	007	S	99L0601	08/23/99	09/01/99	09/07/99
THALLIUM, TOTAL	007	S	99L0601	08/23/99	09/01/99	09/07/99
VANADIUM, TOTAL	007	S	99L0601	08/23/99	09/01/99	09/07/99
ZINC, TOTAL	007	S	99L0601	08/23/99	09/01/99	09/07/99

B0W5K9

SILVER, TOTAL	008	S	99L0601	08/23/99	09/01/99	09/07/99
ARSENIC, TOTAL	008	S	99L0601	08/23/99	09/01/99	09/07/99
BARIUM, TOTAL	008	S	99L0601	08/23/99	09/01/99	09/07/99
BERYLLIUM, TOTAL	008	S	99L0601	08/23/99	09/01/99	09/07/99
CADMIUM, TOTAL	008	S	99L0601	08/23/99	09/01/99	09/07/99
CHROMIUM, TOTAL	008	S	99L0601	08/23/99	09/01/99	09/07/99
COPPER, TOTAL	008	S	99L0601	08/23/99	09/01/99	09/07/99
MERCURY, TOTAL	008	S	99C0254	08/23/99	08/26/99	08/27/99
NICKEL, TOTAL	008	S	99L0601	08/23/99	09/01/99	09/07/99
LEAD, TOTAL	008	S	99L0601	08/23/99	09/01/99	09/07/99
ANTIMONY, TOTAL	008	S	99L0601	08/23/99	09/01/99	09/07/99
SELENIUM, TOTAL	008	S	99L0601	08/23/99	09/01/99	09/07/99
THALLIUM, TOTAL	008	S	99L0601	08/23/99	09/01/99	09/07/99
VANADIUM, TOTAL	008	S	99L0601	08/23/99	09/01/99	09/07/99
ZINC, TOTAL	008	S	99L0601	08/23/99	09/01/99	09/07/99

LAB QC:

SILVER LABORATORY	LC1 BS	S	99L0601	N/A	09/01/99	09/03/99
SILVER, TOTAL	MB1	S	99L0601	N/A	09/01/99	09/03/99
ARSENIC LABORATORY	LC1 BS	S	99L0601	N/A	09/01/99	09/03/99
ARSENIC, TOTAL	MB1	S	99L0601	N/A	09/01/99	09/03/99
BARIUM LABORATORY	LC1 BS	S	99L0601	N/A	09/01/99	09/03/99
BARIUM, TOTAL	MB1	S	99L0601	N/A	09/01/99	09/03/99
BERYLLIUM LABORATORY	LC1 BS	S	99L0601	N/A	09/01/99	09/03/99
BERYLLIUM, TOTAL	MB1	S	99L0601	N/A	09/01/99	09/03/99
CADMIUM LABORATORY	LC1 BS	S	99L0601	N/A	09/01/99	09/03/99
CADMIUM, TOTAL	MB1	S	99L0601	N/A	09/01/99	09/03/99
CHROMIUM LABORATORY	LC1 BS	S	99L0601	N/A	09/01/99	09/03/99
CHROMIUM, TOTAL	MB1	S	99L0601	N/A	09/01/99	09/03/99
COPPER LABORATORY	LC1 BS	S	99L0601	N/A	09/01/99	09/03/99

Recra LabNet - Lionville Laboratory
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNU-HANFORD B99-078

DATE RECEIVED: 08/25/99

RFW LOT # :9908L863

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
COPPER, TOTAL	MB1	S	99L0601	N/A	09/01/99	09/03/99
MERCURY LABORATORY	LC1 BS	S	99C0254	N/A	08/26/99	08/27/99
MERCURY, TOTAL	MB1	S	99C0254	N/A	08/26/99	08/27/99
NICKEL LABORATORY	LC1 BS	S	99L0601	N/A	09/01/99	09/03/99
NICKEL, TOTAL	MB1	S	99L0601	N/A	09/01/99	09/03/99
LEAD LABORATORY	LC1 BS	S	99L0601	N/A	09/01/99	09/03/99
LEAD, TOTAL	MB1	S	99L0601	N/A	09/01/99	09/03/99
ANTIMONY LABORATORY	LC1 BS	S	99L0601	N/A	09/01/99	09/03/99
ANTIMONY, TOTAL	MB1	S	99L0601	N/A	09/01/99	09/03/99
SELENIUM LABORATORY	LC1 BS	S	99L0601	N/A	09/01/99	09/03/99
SELENIUM, TOTAL	MB1	S	99L0601	N/A	09/01/99	09/03/99
THALLIUM LABORATORY	LC1 BS	S	99L0601	N/A	09/01/99	09/03/99
THALLIUM, TOTAL	MB1	S	99L0601	N/A	09/01/99	09/03/99
VANADIUM LABORATORY	LC1 BS	S	99L0601	N/A	09/01/99	09/03/99
VANADIUM, TOTAL	MB1	S	99L0601	N/A	09/01/99	09/03/99
ZINC LABORATORY	LC1 BS	S	99L0601	N/A	09/01/99	09/03/99
ZINC, TOTAL	MB1	S	99L0601	N/A	09/01/99	09/03/99

018

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B99-078-27		Page 1 of 1			
Collector Brent Porter		Company Contact Chris Cearlock		Telephone No. 372-9574		Project Coordinator TRENT, SJ		Price Code 8N		Data Turnaround 45 Days	
Project Designation 200 Area Source characterization - 200-CW-1 OU		Sampling Location GP-14 >15' bgs		15-16F4		SAF No. B99-078					
Ice Chest No. 840 Bowers 8-27-99 SML 297		Field Logbook No. EL-1511				Method of Shipment Federal Express					
Shipped To TMA/RECR RECRA 8-27-99		Offsite Property No. A 890297				Bill of Lading/Air Bill No. 4235 7952 8657 Bowers 8-27-99					
						COA Bowers 8-27-99 Bowers 8-27-99					

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	None	None	None	Cool 4C	None	Cool 4C	None	Cool 4C	None
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG	aG	aG
Special Handling and/or Storage	No. of Container(s)	1	1	1	1	1	1	1	1	1	1
	Volume	60mL	60mL	60mL	120mL	250mL	250mL	500mL	500mL	1000mL	1000mL

SAMPLE ANALYSIS				Isotopic Uranium	Nickel-63	Technetium-99	Tritium - H3	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.
Sample No.	Matrix *	Sample Date	Sample Time										
BOW5L0	Soil	8-27-99	0942					X	X	X	X	X	BOW5L0

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS See chain of custody comments on SAF B99-078.								Matrix *	
Relinquished By Brent Porter	Date/Time 8/23/99 13:00	Received By Refer JB	Date/Time 8/23/99 13:00	(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196 (2) NO2/NO3 - 353.1; IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010 (3) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241); Strontium-89,90 -- Total Sr; Total Uranium (Uranium); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Americium-241								Soil Water Vapor Other Solid Other Liquid	
Relinquished By Ref. JB	Date/Time 8-24-99/1200	Received By Doug Bowers	Date/Time 8-24-99/1200										
Relinquished By Doug Bowers	Date/Time 8-24-99/1000	Received By Fed Ex	Date/Time										
Relinquished By Zedley	Date/Time	Received By Janson	Date/Time 8/25/99 0930										

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

8/27/99
 019-020

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B99-078-29	Page 1 of 1	
Collector Brent Porter		Company Contact Chris Cearlock		Telephone No. 372-9574		Project Coordinator TRENT, SJ	Price Code 8N	Data Turnaround 45 Days
Project Designation 200 Area Source characterization - 200-CW-1 OU		Sampling Location GP-14 >15' bgs 24-25'		SAF No. B99-078				
Ice Chest No. SML-297		Field Logbook No. EL 1511		Method of Shipment Federal Express				
Shipped To RECRA 828 8-23-99		Offsite Property No. A990227		Bill of Lading/Air Bill No. 4235 7952 8657				
				COA B20CW1671C				

POSSIBLE SAMPLE HAZARDS/REMARKS 863	Preservation	None	None	None	None	Cool 4C	None	Cool 4C	None	Cool 4C	None
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG	aG	aG
	No. of Container(s)	1	1	1	1	1	1	1	1	1	1
	Special Handling and/or Storage	Volume	60mL	60mL	60mL	120mL	250mL	250mL	500mL	500mL	1000mL

SAMPLE ANALYSIS				Isotopic Uranium	Nickel-63	Technetium-99	Tritium - H3	VOA - 8260A (TCL); VOA - 8260A (Add-On) [1-Propanol, Ethanol]	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.
Sample No.	Matrix *	Sample Date	Sample Time										
BOW5L2	Soil	8-23-99	1025					X	X	X	X	X	BOW5L2

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS See chain of custody comments on SAF B99-078.				Matrix *	
Relinquished By Brent Porter	Date/Time 8/23/99 13:00	Received By Kiefer JB	Date/Time 8/23/99 13:00	(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196 (2) NO2/NO3 - 353.1; IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010 (3) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on {Americium-241}; Strontium-89,90 - Total Sr; Total Uranium (Uranium); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Americium-241				Soil Water Vapor Other Solid Other Liquid	
Relinquished By B.F. 10	Date/Time 8-24-99/1200	Received By Doug Bowers	Date/Time 8-24-99/1200						
Relinquished By Doug Bowers	Date/Time 8-24-99/1200	Received By For Ex	Date/Time						
Relinquished By Jedey	Date/Time	Received By Janson	Date/Time 8/25/99 0930						
LABORATORY SECTION	Received By	Title		Date/Time					
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By		Date/Time					

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8/23/99
020021

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B99-078-21	Page 1 of 1	
Collector Brent Porter		Company Contact Chris Cearlock		Telephone No. 372-9574		Project Coordinator TRENT, SJ	Price Code 8N	Data Turnaround 45 Days
Project Designation 200 Area Source characterization - 200-CW-1 OU		Sampling Location GP-14 <15' bgs		3'-4'		SAF No. B99-078		
Ice Chest No. ERC 96-030		Field Logbook No. EL154				Method of Shipment Federal Express		
Shipped To TMA/RECRA 8-23-99		Offsite Property No. A990227				Bill of Lading/Air Bill No. 4235 7952 8635		
						COA B20CW1 671C		

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	Cool 4C	None	Cool 4C	None	Cool 4C	None		
	Type of Container	aG	aG	aG	aG	aG	aG	aG		
	No. of Container(s)	1	1	1	1	1	1	1		
	Special Handling and/or Storage	Volume	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL	

SAMPLE ANALYSIS				Isotopic Uranium	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.		
Sample No.	Matrix *	Sample Date	Sample Time									
BOW5K4	Soil	8-27-99	0810				X X X X X					BOW5K4

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By Brent Porter	Date/Time 8/23/99 13:00	Received By Kiefer JB	Date/Time 8/23/99 13:00
Relinquished By R.C.F. 10	Date/Time 8-24-99 1200	Received By Doug Bowers	Date/Time 8-24-99 1200
Relinquished By Doug Bowers	Date/Time 8-24-99 1200	Received By Fred Ex	Date/Time
Relinquished By Fred Ex	Date/Time	Received By Jungson	Date/Time 8/25/99 0930

SPECIAL INSTRUCTIONS
See chain of custody comments on SAF B99-078.

(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196

(2) NO2/NO3 - 353.1; IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010

(3) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241); Strontium-89,90 -- Total Sr; Total Uranium (Uranium); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Americium-241

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

3

8/21/99

021022

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B99-078-22		Page 1 of 1	
Collector Brent Porter		Company Contact Chris Cearlock		Telephone No. 372-9574		Project Coordinator TRENT, SJ		Price Code 8N Data Turnaround 45 Days	
Project Designation 200 Area Source characterization - 200-CW-1 OU		Sampling Location GP-14 <15' bgs 5.5-6.5'		SAF No. B99-078					
Ice Chest No. ERC 96-030		Field Logbook No. EL1511		Method of Shipment Federal Express					
Shipped To TMA/RECRA 8-20-99		Offsite Property No. A990227		Bill of Lading/Air Bill No. 4235 7952 8635					
				COA B20CWI 671C					

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	Cool 4C	None	Cool 4C	None	Cool 4C	None	Cool 4C	None			
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG	aG			
Special Handling and/or Storage	No. of Container(s)	1	1	1	1	1	1	1	1	1			
	Volume	60ml.	250ml.	250ml.	500ml.	500ml.	1000ml.	1000ml.	1000ml.	1000ml.			
SAMPLE ANALYSIS		Isotopic Uranium	VOA - 8260A (TCL), VOA - 8260A (Add-On) (1-Propanol, Ethanol)	pH (Soil) - 9045	Semi-VOA - 8270A (TCL), TPH-Diesel Range - WTPH-D, PCBs - 8082	See item (1) in Special Instructions	See item (2) in Special Instructions	See item (3) in Special Instructions					
Sample No.	Matrix *	Sample Date	Sample Time										
BOW5K5	Soil	8-23-99	0826		X	X	X	X	X				BOW5LB

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS See chain of custody comments on SAF B99-078.				Matrix *	
Relinquished By Brent Porter 8/23/99 1300	Date/Time	Received By Kiefer JB 8/23/99 13:00	Date/Time	(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196 (2) NO2/NO3 - 353.1; IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010 (3) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241); Strontium-89,90 - Total Sr; Total Uranium (Uranium); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Americium-241				Soil Water Vapor Other Solid Other Liquid	
Relinquished By Rof JB 8-24-99/1200	Date/Time	Received By Doug Bowers 8-24-99/1200	Date/Time						
Relinquished By Doug Bowers 8-24-99/1200	Date/Time	Received By Fog Ex	Date/Time						
Relinquished By Jedley	Date/Time	Received By Janson 8/25/99 0930	Date/Time						
LABORATORY SECTION	Received By	Title						Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method		Disposed By				Date/Time		

8/19/99
 022
 022

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B99-078-23		Page 1 of 1	
Collector Brent Porter		Company Contact Chris Cearlock		Telephone No. 372-9574		Project Coordinator TRENT, SJ		Price Code 8N	
Project Designation 200 Area Source characterization - 200-CW-1 OU		Sampling Location GP-14 <15' bgs		8'-9'		SAF No. B99-078		Data Turnaround 45 Days	
Ice Chest No. ERC 96-030		Field Logbook No. EL1711		Offsite Property No. A990227		Method of Shipment Federal Express		Bill of Lading/Air Bill No. 4235 7952 8635	
Shipped To TMA/RECRA AS 20 8-23-99						COA B20CW 671C			

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	Cool 4C	None	Cool 4C	None	Cool 4C	None			
	Type of Container	aG	aG	aG	aG	aG	aG	aG			
	No. of Container(s)	1	1	1	1	1	1	1			
Special Handling and/or Storage	Volume	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL			
SAMPLE ANALYSIS		Isotopic Uranium	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.			
Sample No.	Matrix *	Sample Date	Sample Time								
B0W5K6	Soil	8-27-99	0846		X	X	X	X	X		Bow5K6

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS See chain of custody comments on SAF B99-078.				Matrix * Soil Water Vapor Other Solid Other Liquid	
Relinquished By Brent Porter	Date/Time 8/23/99 13:00	Received By Kefe JB	Date/Time 8/23/99 13:00	(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196 (2) NO2/NO3 - 353.1; IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010 (3) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241); Strontium-89,90 -- Total Sr; Total Uranium (Uranium); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Americium-241					
Relinquished By Rof 10	Date/Time 8-24-99/1200	Received By Doug Bowers	Date/Time 8-24-99/1250						
Relinquished By Doug Bowers	Date/Time 8-24-99/1200	Received By Fae EX	Date/Time 8-24-99/1200						
Relinquished By Decker	Date/Time 8-25-99 0930	Received By Janson	Date/Time 8/25/99 0930						
LABORATORY SECTION	Received By	Title		Disposed By				Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method						Date/Time		

023 024
 023 024

Collector Brent Porter	Company Contact Chris Cearlock	Telephone No. 372-9574	Project Coordinator Trent, SJ	Price Code 8N	Data Turnaround 45 Days
Project Designation 200 Area Source characterization - 200-CW-1 OU	Sampling Location GP-14 <15' bgs	10.5-11.5	SAF No. B99-078		
Ice Chest No. ERC 96-017	Field Logbook No. EL 1511	Method of Shipment Federal Express			
Shipped To TMA/RECRA 870 8-23-99	Offsite Property No. A 990227	Bill of Lading/Air Bill No. 4235 7952 8646			
		COA D28 CW 6715			

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	Cool 4C	None	Cool 4C	None	Cool 4C	None		
	Type of Container	aG	aG	aG	aG	aG	aG	aG		
	No. of Container(s)	1	1	1	1	1	1	1		
Special Handling and/or Storage	Volume	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL		

SAMPLE ANALYSIS				Isotopic Uranium	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.		
Sample No.	Matrix *	Sample Date	Sample Time									
BOWSK7	Soil	8-23-99	0856		X	X	X	X	X			BOWSK7

CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS See chain of custody comments on SAF B99-078.				Matrix * Soil Water Vapor Other Solid Other Liquid			
Relinquished By Brent Porter		Date/Time 8/23/99 13:00		Received By Brent Porter		Date/Time 8/23/99 13:00		(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196 (2) NO2/NO3 - 353.1; IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010 (3) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241); Strontium-89,90 - Total Sr; Total Uranium (Uranium); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Americium-241			
Relinquished By A.C.F. B		Date/Time 8-24-99/1200		Received By Doug Bowers		Date/Time 8-24-99/1200					
Relinquished By Doug Bowers		Date/Time 8-24-99/1200		Received By Koe Ex		Date/Time					
Relinquished By Federal		Date/Time		Received By Janison		Date/Time 8/25/99 0932					
LABORATORY SECTION	Received By	Title				Date/Time					
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By				Date/Time					

6
 8/24/99
 824 025

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B99-078-25		Page 1 of 1	
Collector Brent Porter		Company Contact Chris Cearlock		Telephone No. 372-9574		Project Coordinator IRENT, SJ		Price Code 8N	
Project Designation 200 Area Source characterization - 200-CW-1 OU		Sampling Location GP-14 <15' bgs		13'-14'		SAF No. B99-078		Data Turnaround 45 Days	
Ice Chest No. ERC 96-017		Field Logbook No. EL 1511				Method of Shipment Federal Express			
Shipped To TMA/RECR RECR 5788-23-99		Offsite Property No. A 990227				Bill of Lading/Air Bill No. 4235 7952 8646			
						COA B20CW1 6710			

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	Cool 4C	None	Cool 4C	None	Cool 4C	None			
	Type of Container	aG	aG	aG	aG	aG	aG	aG			
	No. of Container(s)	1	1	1	1	1	1	1			
	Special Handling and/or Storage	Volume	60ml.	250ml	250ml.	500ml.	500ml	1000ml.	1000ml.		
SAMPLE ANALYSIS		Isotopic Uranium	VIA - 8290A (ICL) VIA - 8290A1 Add-On 11-Propanol Ethanol	1015 (Soil) - 9015	Semi-VIA - 8270A (H1) 1PH-Diesel Range - W1PH-D, PCBs - 8082	See item 11 in Special Instructions	See item 12 in Special Instructions	See item 13 in Special Instructions			
Sample No.	Matrix *	Sample Date	Sample Time								
B0W5K8	Soil	8-23-99	0911		X	X	X	X	X		B0W5K8

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS				Matrix *	
Relinquished By Brent Porter 8/23/99 13:00		Received By Refer JB 8/23/99 13:00		See chain of custody comments on SAF B99-078.				Soil	
Relinquished By R.F. D 8-24-99/1200		Received By Doug Bowers 8-24-99/1200		(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196				Water	
Relinquished By Doug Bowers 8-24-99/1200		Received By Fred Ex		(2) NO2/NO3 - 353.1; IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010				Vapor	
Relinquished By Fred Ex		Received By Janison 8/25/99 0930		(3) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241); Strontium-89,90 - Total Sr; Total Uranium (Uranium); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Americium-241				Other Solid	
LABORATORY SECTION		Received By		Date/Time				Other Liquid	
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By				Date/Time	

025 02L

Collector Brent Porter	Company Contact Chris Cearlock	Telephone No. 372-9574	Project Coordinator Trent, SJ	Price Code 8N	Data Turnaround 45 Days
Project Designation 200 Area Source characterization - 200-CW-1 OU	Sampling Location GP-14 <15' bgs	14-15'	SAF No. B99-078		
Ice Chest No. ERC 96-017	Field Logbook No. EL 15/1	Method of Shipment Federal Express			
Shipped To TMA/RECRA 8/20/99	Offsite Property No. A 990227	Bill of Lading/Air Bill No. 4235 7952 8646			
COA B20CW2 671C					

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	Cool 4C	None	Cool 4C	None	Cool 4C	None		
	Type of Container	aG	aG	aG	aG	aG	aG	aG		
	No. of Container(s)	1	1	1	1	1	1	1		
Special Handling and/or Storage	Volume	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL		
SAMPLE ANALYSIS		Isotopic Uranium	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.		
Sample No.	Matrix *	Sample Date	Sample Time							
B0W5K9	Soil	8-22-99	0928		X	X	X	X	X	B0W5LB

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By Brent Porter	Date/Time 8/23/99 13:00	Received By Kater IB	Date/Time 8/23/99 13:00
Relinquished By R.P. JB	Date/Time 8-24-99/12:00	Received By Doug Bannan	Date/Time 8-24-99/12:00
Relinquished By Doug Bannan	Date/Time 8-24-99/12:00	Received By Fred Ex	Date/Time 8/25/99 0930
Relinquished By DeeLeep	Date/Time	Received By Johnson	Date/Time 8/25/99 0930
LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

See chain of custody comments on SAF B99-078.

(1) ICP Metals - 6010A (Supertrace) [Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc]; Mercury - 7471 - (CV); Chromium Hex - 7196
 (2) NO2/NO3 - 353.1; IC Anions - 300.0 [Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate]; Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010
 (3) Gamma Spectroscopy: [Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155]; Gamma Spec - Add-on [Americium-241]; Strontium-89,90 -- Total Sr; Total Uranium [Uranium]; Isotopic Plutonium; Isotopic Thorium [Thorium-232]; Americium-241

Soil
Water
Vapor
Other Solid
Other Liquid

02602